

# C++ ASSIGNMENT

**1.Ques** :Write a program to store 10 at every index of a 2D matrix with 5 rows and 5 columns.

**Ans:** `#include<iostream>`  
`using namespace std;`  
`int main(){`  
    `int arr[5][5];`  
    `for(int i=0;i<=4;i++){`  
        `for(int j=0;j<=4;j++){`  
            `arr[i][j]=10;`  
        `}`  
    `}`  
    `for(int i=0;i<=4;i++){`  
        `for(int j=0;j<=4;j++){`  
            `cout<<arr[i][j]<<" ";`  
        `}`  
    `cout<<endl;`  
    `}`  
    `return 0;`  
`}`

**2.Ques** :Write a program to add two matrices and save the result in one of the given matrices.

Input 1:

1 2 3

4 5 6

7 8 9

4 5 8

0 0 8

1 2 0

**Ans:** `#include<iostream>`

`using namespace std;`

```
int main(){
    int m;
    cout<<"Enter rows: ";
    cin>>m;
    cout<<"Enter cloumns: ";
    int n;
    cin>>n;
    int m1;
    cout<<"Enter rows2: ";
    cin>>m1;
    cout<<"Enter cloumns2: ";
    int n1;
    cin>>n1;
    int arr[m][n];
    for(int i=0;i<=m-1;i++){
        for(int j=0;j<=n-1;j++){
            cin>>arr[i][j];
        }
    }
    int brr[m1][n1];
    for(int i=0;i<=m1-1;i++){
        for(int j=0;j<=n1-1;j++){
            cin>>brr[i][j];
        }
    }
}
```

```

        for(int i=0;i<=m-1;i++){
            for(int j=0;j<=n-1;j++){
                brr[i][j]+=arr[i][j];
            }
        }
        for(int i=0;i<=m-1;i++){
            for(int j=0;j<=n-1;j++){
                cout<<brr[i][j]<<" ";
            }
            cout<<endl;
        }
        return 0;
    }
}

```

**3.Ques :** Given a matrix 'A' of dimension n x m and 2 coordinates (l1, r1) and (l2, r2). Return the sum of the rectangle from (l1,r1) to (l2, r2).

**Ans:** `#include<iostream>`  
`using namespace std;`  
`int main(){`  
     `int m;`  
     `cout<<"Enter rows: ";`  
     `cin>>m;`  
     `cout<<"Enter cloumns: ";`  
     `int n;`  
     `cin>>n;`  
     `int arr[m][n];`  
     `for(int i=0;i<=m-1;i++){`  
         `for(int j=0;j<=n-1;j++){`  
             `cin>>arr[i][j];`  
         `}`  
     `}`  
`}`

```

    }
    int l1,r1,l2,r2;
    cout<<"Enter the coordinate: ";
    cin>>l1>>r1;
    cout<<"Enter the coordinate: ";
    cin>>l2>>r2;
    int sum=0;
    for(int i=l1;i<=l2;i++){
        for(int j=r1;j<=r2;j++){
            sum+=arr[i][j];
        }
    }
    cout<<sum;
    return 0;
}

```

**4.Ques:**Write a C++ program to find the largest element of a given 2D array of integers.

**Ans:** #include<iostream>  
using namespace std;  
int main(){  
 int m;  
 cout<<"Enter rows: ";  
 cin>>m;  
 cout<<"Enter cloumns: ";  
 int n;  
 cin>>n;  
 int arr[m][n];  
 for(int i=0;i<=m-1;i++){  
 for(int j=0;j<=n-1;j++){  
 cin>>arr[i][j];

```

    }
}
int max=INT_MIN;
for(int i=0;i<=m-1;i++){
    for(int j=0;j<=n-1;j++){
        if(arr[i][j]>max){
            max=arr[i][j];
        }
    }
}
cout<<max;
return 0;
}

```

**5.Ques:**Write a program to print the row number having the maximum sum in a given matrix.

Input 1:

1 3 5 7

3 4 7 8

1 4 12 3

Output 1: 2

Explanation : The 2nd row has the maximum sum i.e.  $1+4+12+3 = 20$

**Ans:** #include<iostream>

using namespace std;

int main(){

int m;

cout<<"Enter rows: ";

cin>>m;

cout<<"Enter cloumns: ";

int n;

```

    cin>>n;
    int arr[m][n];
    for(int i=0;i<=m-1;i++){
        for(int j=0;j<=n-1;j++){
            cin>>arr[i][j];
        }
    }
    int idx=-1;
    int max=INT_MIN;
    for(int i=0;i<=m-1;i++){
        int sum=0;
        for(int j=0;j<=n-1;j++){
            sum=sum+arr[i][j];
        }
        if(sum>max){
            max=sum;
            idx=i;
        }
    }
    cout<<idx;
    return 0;
}

```

**6.Ques:**Write a function which accepts a 2D array of integers and its size as arguments and displays the elements of middle row and the elements of middle column.

[Assuming the 2D Array to be a square matrix with odd dimensions i.e. 3x3, 5x5, 7x7 etc...]

**Ans:** #include<iostream>

using namespace std;

int main(){

```

int m;
cout<<"Enter rows: ";
cin>>m;
cout<<"Enter cloumns: ";
int n;
cin>>n;
int arr[m][n];
for(int i=0;i<=m-1;i++){
    for(int j=0;j<=n-1;j++){
        cin>>arr[i][j];
    }
}
for(int i=0;i<=m-1;i++){
    for(int j=0;j<=n-1;j++){
        if(i==(m-1)/2||j==(n-1)/2){
            cout<<arr[i][j];
        }
        else cout<<" ";
    }
}
cout<<endl;
}
return 0;
}

```